Book Review

COLOR ATLAS OF GENETICS
By Eberhard Passarge
with 174 color plates by Jürgen Wirth
Georg Thieme Verlag, Stuttgart and New York; Thieme Medical Publishers, Inc., New York, 1995, 411 pp.

Dr. Passarge has an international reputation for his extensive studies in clinical genetics. In this book, translated from the 1994 German edition, he aims to describe the current status of genetics, especially medical genetics, at a level appropriate to students but also as an orientation to the field for physicians, biologists, and others.

The book is organized as an atlas in which almost every double page carries colored illustrations on one page, with explanatory material, often little more than captions, on the facing page. The illustrations have been prepared as computer graphics by Jürgen Wirth, in collaboration with the author. The small page size (5 × 7.5 inches) must have presented a challenge to artist and author, although it does allow the book to fit into a lab coat pocket for ready reference.

The author states that his book should be considered a supplement to and not a substitute for a textbook. Viewed in that light, it is a useful addition to our bookshelves. It provides a short review of the history of genetics, fundamental genetics and cell biology, the principles of human genetics, and human genetic disorders, especially metabolic disorders. The book is made interesting and useful by the wide range of genetic subjects covered (even plants, which rarely make an appearance in medical genetics except for Mendel's work). Some sections seem particularly fresh and clear, e.g., the section on linkage and lod scores. Although the book's breadth and brevity result in a rather superficial coverage of many topics, the references given in each section direct readers to additional information. Surprisingly, in view of Dr. Passarge's own contributions, there are no references to the leading classics in the field of dysmorphogenesis, often the chief attraction of genetics for physicians. There is an extensive glossary of some 350 genetic terms.

Not all the hot topics in medical genetics are discussed or even mentioned. Imprinting, trinucleotide repeats, and mitochondrial disorders are described, but the molecular basis of X-inactivation, the role of germinal and somatic mosaicism in genetic disorders, and the analysis of disorders with complex inheritance are missing. Genetic counseling, prenatal diagnosis, screening, and the prospects of gene therapy are hardly mentioned.

Inevitably, the concise approach has allowed inaccuracies to creep in. One serious example is the discussion and illustration of twinning. In the figures the chorion is not shown at all. In the accompanying comments the statement is made that monozygotic (MZ) twins always have a common placenta; this is a false idea that has left many MZ twin pairs puzzling over their physical similarity even though "the doctor said there were two placentas so we can't be identical." Actually about 10% percent of all MZ twins have separate placentas. A single amnion (illustrated here without comment) is a rare anomaly. In the same section, dizygotic (DZ) twins are described as sometimes sharing a single placenta; this does happen, but the "single" placenta actually represents secondary fusion of originally separate placentas. In a figure of twins connected by a shunt, the twins are labelled as DZ, whereas shunts are virtually confined to MZ pairs. Acardius is illustrated, but the anomaly of artery-to-artery shunting is not explained.

The Color Atlas of Genetics will probably find its main use, as the author intended, as a quick introduction for students and residents new to genetics, and for professionals who need a quick update in an unfamiliar area. Students with a serious involvement in human and medical genetics will need deeper discussions, more theory and analysis, and a more sophisticated medical and scientific approach than provided here.

As with all publications on genetic topics, the book's half-life is limited; some areas, such as microdeletion syndromes, could already use an update. Readers should be advised to get this volume while it's still current.

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